

What is claimed is:

1. An orthopedic implant, comprising:

a longitudinal member, said longitudinal member having a lower side for facing a bone, an upper side for facing away from a bone, and an aperture through said longitudinal member from said first side to said second side, said longitudinal member further including a longitudinal channel parallel to and between said first and second sides, said channel being substantially perpendicular to said aperture;

a stabilizer having an opening therethrough bounded by a conical surface, said stabilizer further having a plurality of laterally extending fingers occupying said channel so that said stabilizer is in one of an infinite number of positions wherein said opening is adjacent to said aperture of said longitudinal member;

a fixation member having a first threaded portion for fixing to a bone, a second threaded portion, and a diametrically enlarged portion between said first and second threaded portions, said enlarged portion including a plurality of torque transmission surfaces, and said fixation member extending through said stabilizer and said longitudinal member so that said enlarged portion contacts a portion of said surface bounding said opening of said stabilizer;

a washer having a rounded top, said washer adapted for placement over said second threaded part of said fixation member and into contact with said second side of said longitudinal member; and

a nut having a rounded underside and adapted to be threaded onto said second threaded portion of said fixation member and down onto said washer, to thereby lock said fixation member in place relative to said longitudinal member.

2. The implant of claim 1, wherein said channel is continuous and extends through substantially the entire length of said longitudinal member.

3. The implant of claim 1, further comprising at least one additional stabilizer each having an opening therethrough bounded by a conical surface, said at least one additional stabilizer further each having a plurality of lateral fingers occupying said channel so that said at least one additional stabilizer is in a preselected one of an infinite number of positions wherein said opening of said at least one additional stabilizer is adjacent to said aperture of said longitudinal member.

4. The implant of claim 3, further comprising at least one additional fixation member each having a first threaded portion for fixing to a bone, a second threaded portion, and a diametrically enlarged portion between said first and second threaded portions, said enlarged portion of said at least one additional fixation member including a plurality of torque transmission surfaces, and said at least one additional fixation member extending through a corresponding one of said at least one additional stabilizer and said longitudinal member so that said enlarged portion of said at least one additional fixation member contacts a portion of said surface bounding said opening of said corresponding stabilizer.

5. The implant of claim 1, wherein said opening in said stabilizer has a longitudinal axis, and said stabilizer substantially forms a parallelogram in a plane substantially perpendicular to said axis.

6. The implant of claim 5, wherein said stabilizer substantially forms a square in a plane substantially perpendicular to said axis.

7. The implant of claim 1, wherein said washer has a bottom surface for contacting said longitudinal member that includes a substantially flat portion and a projection extending substantially perpendicularly from said bottom surface.

8. The implant of claim 7, wherein said longitudinal member has a ledge within said aperture and said aperture is bounded above said ledge by substantially parallel wall sections, and said projection of said washer is configured to fit within said aperture and rest on said ledge.

9. The implant of claim 8, wherein said projection of said washer is configured to cooperate with said substantially parallel wall sections to minimize rotation of said washer with respect to said longitudinal member.

10. The implant of claim 9, wherein said projection is substantially square.

11. The implant of claim 7, wherein said washer includes a hole therethrough bounded by a wall that has a conical portion.

12. The implant of claim 1, wherein said nut includes a break-off portion that is severed when a torque exceeding a predetermined amount is applied to said break-off portion.

13. A spinal implant system, comprising:

a plate member having a longitudinal axis, a first end and a second end, said first end having a first slot and a second slot extending through said plate member, said slots being substantially parallel to and offset from said axis and said first slot having a longitudinal channel formed therein, said second end having a first aperture and a second aperture through said plate member;

a stabilizer having an opening therethrough bounded by a conical surface, said stabilizer further having a plurality of lateral fingers occupying said channel so that said stabilizer is in a preselected one of an infinite number of positions wherein said opening is adjacent to said first slot;

a fixation member having a first threaded portion for connection with a bone, a second threaded portion, and an enlarged head portion between said threaded portions for spacing said stabilizer and said plate member from said bone, said fixation member extending through said opening of said stabilizer and said first slot;

a washer having a body portion with a convex upper portion, a substantially flat lower surface, and a hole therethrough, said washer further including a flange portion

extending laterally from said body portion, said flange including a C-clip, said washer being adapted for placement around said fixation member so that said C-clip extends above a portion of said second slot; and

a nut having a concave underside, said nut being threaded on said second threaded portion of said fixation member, whereby said plate member, stabilizer, fixation member, washer and nut are locked in cooperation with each other.

14. The system of claim 13, further comprising a screw having a threaded portion and a head portion, said head portion having a lower convex portion, an upper portion, and a substantially cylindrical portion between said upper and lower portions; and

said screw extending through said C-clip and said second slot and into a bone.

15. The system of claim 14, wherein said second slot has a beveled upper edge adapted to accommodate said lower convex portion of said head portion of said screw.

16. The system of claim 14, wherein said C-clip has an inner diameter smaller than the diameter of said cylindrical portion of said head portion of said screw.

17. The system of claim 13, wherein said enlarged head portion of said fixation member has a plurality of substantially flat torque transmission surfaces.

18. The system of claim 13, wherein said enlarged portion of said fixation member overlaps with one of said threaded portions.

19. The system of claim 18, wherein said first threaded portion of said fixation member has a head surface and a root diameter that increases toward said enlarged head portion so that said head surface is substantially a continuation of said root diameter.

20. The system of claim 13, wherein said second threaded portion includes a break-off groove.

21. The system of claim 20, wherein said second threaded portion includes an end portion having a driving print thereon.

22. The system of claim 21, wherein said driving print includes a plurality of external surfaces for torque transmission.

23. The system of claim 13, wherein said C-clip portion of said washer is integrally formed with said flange portion.

24. The system of claim 13, wherein said flange portion of said washer is non-parallel with said substantially flat lower surface.

25. The system of claim 24, wherein said flange portion of said washer forms an obtuse angle with said substantially flat lower surface.

26. The system of claim 13, wherein said flange portion includes lower surface and a secondary flange extending from said lower surface.

27. The system of claim 13, wherein said hole through said body portion of said washer is bounded by a wall having a conical upper portion.

28. The system of claim 14, wherein said lower convex portion of said head of said screw is spherical.

29. The system of claim 28, wherein said upper portion of said head of said screw is spherical.

30. The system of claim 14, wherein said screw has a longitudinal axis, said upper portion and said lower portion of said head have respective maximum diameters with respect to said screw axis, and said diameter of said cylindrical portion is greater than said diameters of said upper portion and said lower portion.

31. The system of claim 30, wherein said head portion of said screw includes a tool-insertion recess.

32. The system of claim 13, further comprising

a second fixation member having a first threaded portion for connection with a bone, a second threaded portion, and an enlarged head portion between said threaded portions, said second fixation member extending through said first aperture and into a bone,

a second washer having a body portion with a convex upper portion, a substantially flat lower surface, and a hole therethrough, said washer further including a flange portion extending laterally from said body portion, said flange including a C-clip, said washer being adapted for placement around said second fixation member so that said C-clip extends above a portion of said second aperture, and

a second nut having a concave underside, said nut being threaded on said second threaded portion of said second fixation member, whereby said plate member, second fixation member, second washer and second nut are locked in cooperation with each other.

33. The system of claim 32, further comprising a second screw having a threaded portion and a head portion, said head portion having a lower convex portion, an upper portion, and a substantially cylindrical portion between said upper and lower portions; and

said second screw extending through said C-clip and said second aperture and into a bone.



34. The system of claim 33, wherein said C-clip has an inner diameter smaller than the diameter of said cylindrical portion of said head portion of said screw.

0944059-08304  
TOP SECRET